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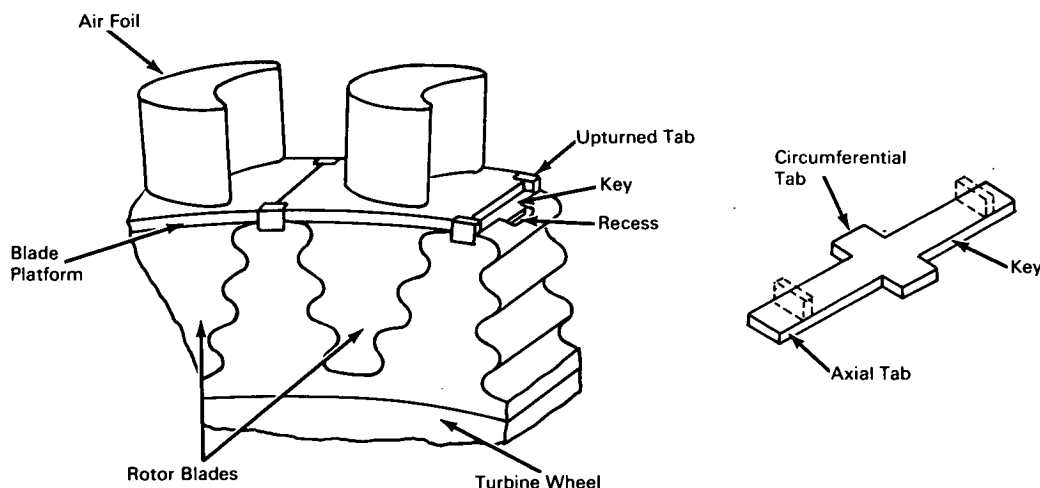
Brief 66-10023

# NASA TECH BRIEF



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## Simple Key Locks Turbine Rotor Blades



### The problem:

To design a simple, positive locking device for retaining rotor blades on a turbine wheel. The device must not introduce aerodynamic resistance or upset rotor balance.

### The solution:

A symmetrical, cruciform key with end tabs that bend up to lock the rotor blades against axial displacement.

### How it's done:

The key fits into axial and circumferential recesses cut into the top of the turbine wheel. The axial recesses are centered on the adjoining edges of each pair of rotor blades. When the end tabs of a key are turned up they lock the adjoining edges of two ad-

jacent blades. Corner notches are provided in the blade platforms to engage the upturned tabs in an aerodynamically smooth closure.

### Notes:

1. This simple, inexpensive locking device is applicable to rotor blades used in turbojet engines, axial flow compressors, and other machines of similar configuration.
2. Inquiries concerning this invention may be directed to:

Technology Utilization Officer  
Western Operations Office  
150 Pico Boulevard  
Santa Monica, California, 90406  
Reference: B66-10023

(continued overleaf)

**Patent status:**

This invention has been patented by NASA (U.S. Patent No. 3,202,398), and royalty-free license rights will be granted for its commercial development. Inquiries about obtaining a license should be addressed to NASA, Code AGP, Washington, D.C., 20546.

Source: North American Aviation, Inc.  
under contract to  
Western Operations Office  
(WOO-103)